

Up-to-Date Review And Case Report

Lockdown-related idiopathic facial paralysis: illustration of an indirect victim of the COVID-19 pandemic?

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Abstract – Introduction: In the midst of the COVID-19 pandemic, there are numerous reports of SARS-CoV-2-related symptoms in many medical subspecialties. Unfortunately, there seems to be little focus on indirect victims of COVID-19, such as diseases/ailments secondary to COVID-19-related lockdown in relevant countries. **Observation:** We report a case of idiopathic facial paralysis (Bell's Palsy) that occurred in an otherwise-healthy 49-year-old French chef during nationwide lockdown, possibly fostered by severe concerns regarding his professional prospects. Other manifestations of severe anxiety were also observed such as tension-type headache and psoriasis outbreaks. Prednisone and valaciclovir were initiated, in association with simple counselling. **Commentary and conclusion:** As HSV-1 reactivation in the facial nerve is suspected in the pathophysiology of idiopathic facial paralysis, this case could constitute an example of lockdown-related disease and an illustration of indirect manifestations of the COVID-19 pandemic. Such indirect diseases are likely to increase as the pandemic continues to take its toll both medically and socio-economically.

Introduction

In the midst of the Coronavirus Disease 2019 (COVID-19) pandemic, a growing number of publications from numerous medical subspecialties have started to explore the multiple facets of the Severe Acute Respiratory distress Syndrome Coronavirus 2 (SARS-CoV-2) infection, in an attempt to foster better understanding and thus earlier diagnosis of the disease.

Apart from the obvious medical impact of the pandemic, its socio-economical impact should not be underestimated, especially in countries that have resorted to nationwide lockdown to control the spread of the disease, as in France for example. Mandatory cessation of professional activity, significant income loss and uncertainty regarding professional prospects all have significant deleterious effects on the patient's psychological wellbeing, that can lead to anxiety-related or anxiety-favored diseases (substance abuse, psychological distress, headache disorders, skin diseases...) [1]. Unfortunately, it seems that little focus has been given so far to such invalidating diseases and the impact of the COVID-19 pandemic on otherwise healthy patients.

We report a case of a healthy 49-year-old French chef, who suffered from right idiopathic facial paralysis (Bell's Palsy) in a context of severe lockdown-related anxiety (stemming mainly from concerns regarding his professional prospects). As such facial paralysis is considered secondary to reactivation of Herpes Simplex Virus 1 (HSV-1) in the facial nerve [2,3] and in analogy with stress-related *herpes labialis* outbreaks [4] this case could constitute a lockdown-related (or favored) illness, an illustration of the indirect medical impact of the COVID-19 pandemic.

Observation

On April 6, 2020, during the French nationwide lockdown, a 49-year-old male patient was referred to the Oral Medicine department of a Parisian hospital for diagnosis and management of an isolated, painless, acute right facial paralysis that had occurred progressively, 12 h prior. Medical and surgical patient history was unremarkable (except for psoriasis) but the patient had presented a similar-spontaneously resolving-facial paralysis 3 years ago. Anamnesis revealed an unspecified episode of cutaneous rash a few days before current paralysis onset. Physical examination confirmed a complete right-sided peripheral facial paralysis (Fig. 1), with grade V impairment according to the House-Brackmann classification [5] (i.e. facial

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Fig. 1. Right idiopathic peripheral facial nerve paralysis at rest (left) and during forced eye-closure and smiling (right). Of note: the facial asymmetry at rest, right frontalis muscle paralysis, incomplete right lid closure, lack of right nasolabial fold and significant mouth asymmetry.

asymmetry at rest, right frontalis muscle paralysis, incomplete lid closure and significant mouth asymmetry). The remaining neurological examination was unremarkable (normal consciousness and motor function, no headache, no hyperacusis, no cranial nerve impairment, no ataxia, no focal neurological deficit or signs of meningeal irritation). Cutaneous examination did not find any significant skin lesion suggestive of Ramsay Hunt syndrome or Herpes zoster. Neither parotidomegaly nor lymphadenopathy were found. Cerebral Magnetic Resonance Imaging (with specific CISS sequences to explore the facial nerve) showed discrete enhancement of the right facial nerve (Fig. 2) (a presentation suggestive of facial nerve neuritis [6]) without any signs of stroke, multiple sclerosis, intracranial expansive processes or other brain pathology. A diagnosis of idiopathic facial paralysis (Bell's Palsy) was made, and as the patient recognized this paralysis as identical to the one he presented 3 years ago, no further investigations were deemed necessary. A prescription of prednisone (1 mg/kg single daily dose) and valaciclovir (1000 mg t.i.d) was given for 10 days, as per local department protocol.

On April 14, 2020, upon follow-up, the patient reported continuous severe right-side pressing occipital and hemicranial pain for the past 5 days, with associated pericranial tenderness and right trapezius trigger points found upon clinical examination, suggestive of infrequent episodic tension-type headache as per the International Classification of Headache Disorders 3rd version criteria (ICHD-3 2.1.1) [7] that the patient managed with codeine. Psoriasis outbreaks on both arms were also noted (Fig. 3). Facial paralysis seemed unchanged and treatment was extended for five more days. Upon further discussion, the patient spontaneously reported severe anxiety, linked to his uncertain professional prospects in the context of COVID-19-related lockdown. Indeed, as a restaurant chef, his professional activity had stopped, and he

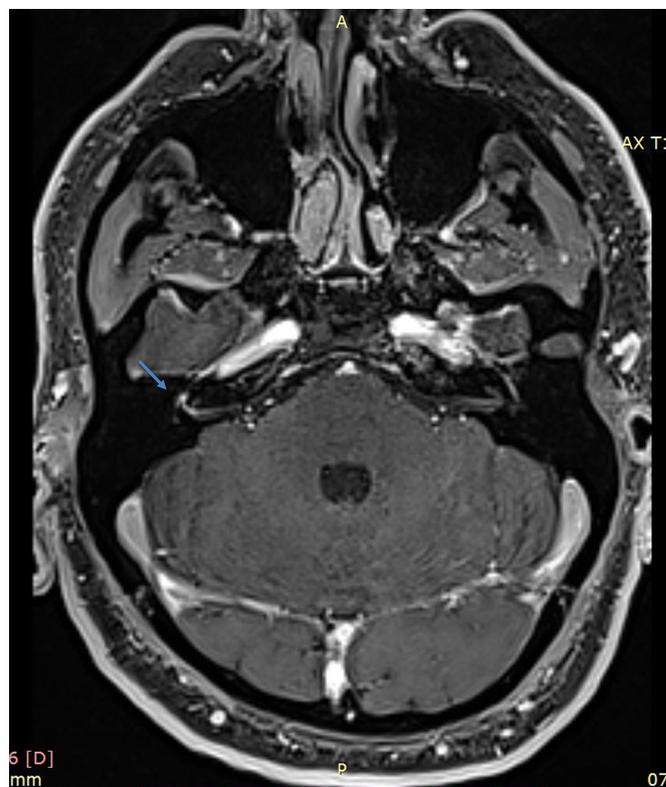


Fig. 2. Axial slice of T1 3D VIBE FatSat Gadolinium-enhanced brain MRI sequence centered on the pontocerebellar angles showing unilateral enhancement of the right facial nerve (arrow) typical of idiopathic facial paralysis (Bell's palsy).



Fig. 3. Psoriasis plaques on the elbows and lateral aspect of both forearms.

was left without any income or unemployment benefits. He was particularly concerned about losing his job if the restaurant could not reopen following the end of lockdown. Furthermore, he deplored the lack of information from his hierarchy or from the government regarding his current and future situation.

On April 21, 2020, no significant improvement in facial paralysis was noted (which was considered a normal occurrence for a 2-week follow-up). The patient reported a decrease in perceived anxiety (and in intensity/frequency of tension-type headache), partly due to the therapeutic effect of discussing his predicament during the previous follow-up. Upon eliciting further open discussion of his situation, three main themes related to his anxiety emerged:

Table I. Evolution of the patient's symptomatology as compared to the overall evolution of the French COVID-19 pandemic.

	Evolution of the COVID-19 pandemic in France	Evolution of patient symptomatology
January 2020	January 24 – First case of SARS-CoV-2 infection in France	
March 2020	March 14 – Level 3 epidemic in France; bars and restaurants are closed for an indefinite period March 17 – Nationwide lockdown instituted	
April 2020	LOCKDOWN	April 5 – First symptoms of facial paralysis April 6 – First consultation: Diagnosis of peripheral facial paralysis, prescription of prednisone/valaciclovir and brain MRI April 9 – Onset of right pressing occipital pain April 14 – First follow-up: Diagnosis of infrequent episodic tension-type headache favored by patient-reported severe anxiety (related to his uncertain professional future) in association with a psoriasis outbreak on both arms April 21 – Second follow-up: No improvement in facial paralysis but decreased anxiety (following the discussion in the previous consultation)
May 2020	May 11 – End of nationwide lockdown; bars and restaurants are still closed	May 5 – Third follow-up: Improvement in facial paralysis (complete lid closure and reappearance of nasolabial fold) and patient-reported feeling of overall improvement (including decreased anxiety)

- The patient was overall anxious regarding the global pandemic and the “media-fuelled terror”, mostly concerned for the health of his family.
- Lack of proper information from his professional hierarchy and from the government led to an unpleasant feeling of uncertainty regarding his personal and professional future.
- As a chef passionate about his work (he talked a lot about his love of the job and the long hours he enjoyed putting into his work), mandatory nationwide lockdown and subsequent halt in professional activity had led to a significant and troublesome identity crisis (“This isn’t me.”).

On May 5, 2020, significant improvement in facial paralysis was noted upon clinical examination (complete lid closure was possible and the nasolabial fold had reappeared) as also reported by the patient. Overall anxiety had further decreased and the patient was thankful of the time spent discussing his personal and professional issues, allowing him to focus on finding solutions for his -still unresolved-predicament. As no further treatment was deemed necessary, the need for further follow-up was left to the patient's discretion.

Overall evolution of patient symptomatology is summarized in [Table I](#).

Commentary

Idiopathic facial paralysis (also called Bell's palsy) is a peripheral paralysis of the facial nerve of unknown origin, and

the most common cause of facial nerve paralysis [4]. Current treatment options include corticosteroids (which have been shown to significantly improve motor recovery [8]), possibly associated with virostatic agents. Although, the efficacy of antivirals on motor recovery still hasn't been shown in recent meta-analyses [9], there is evidence to suggest that they are effective in reducing the risk of late sequelae (such as motor synkinesia and crocodile tears) [9]. Physiotherapy could also help improve facial function in chronic cases and reduce sequelae in acute cases [10].

From a pathophysiological standpoint, it has been suggested that facial nerve paralysis could result from the reactivation of herpes simplex virus type 1 (HSV-1) infection within the facial nerve [2,3,11] and that as such, episodes of facial paralysis could be provoked by stress (or trauma, e.g. following dental treatment [11]), in analogy to herpes labialis [4]. The present case gives credence to such theory, as idiopathic facial paralysis occurred concurrently with a major anxiety episode secondary to COVID-19-related lockdown and subsequent socio-economical repercussions. Interestingly, a recent study showed a bidirectional association between idiopathic facial paralysis and anxiety disorders [12], with a hazard ratio for patients with anxiety disorders to develop Bell's palsy of 1.53 (95% CI [1.21, 1.94], $P < 0.001$).

Indeed, the COVID-19 pandemic is fraught with stress and anxiety, related to both its medical and socio-economical impact. A recent Chinese study highlighted an alarming

increase in anxiety and/or depression in the general Chinese population during the COVID-19 pandemic, linked to three major psychosocial stressors: fear of infection for oneself or loved ones, concerns regarding income loss/job/study/rent or overall inconvenience/unpleasantness of home quarantine [13]. Interestingly, they also showed that such increase in anxiety-depressive symptoms could be linked to total time of COVID-19-related media exposure [13], the same conclusion as for Yao [14]. In the present case, our patient reported similar anxiety following incessant news coverage of the COVID-19 pandemic. This was in unfortunate contrast with his perceived lack of information from relevant authorities, possibly contributing to further said anxiety.

Finally, as reminded by Michael Balint's famous aphorism: "The doctor himself is the most frequently prescribed medication." [15]. Simple doctor/patient conversation regarding the patient's predicament during follow-up allowed significant improvement in perceived anxiety, in the reported case. This is obviously of quintessential importance for patients who have been socially isolated by the mandatory nationwide lockdown.

Lessons learned

- COVID-19-related lockdown can lead to significant anxiety-related disorders (facial nerve paralysis, tension-type headache, psoriasis outbreaks...), especially in patients who have been strongly impacted by the mandatory halt in (non essential) professional activities.
- Existence of anxiety-related Bell's palsy could give credence to hypothesized HSV-1 reactivation pathophysiology.
- Open discussion with the patients of lockdown-related distress is quintessential in preventing and/or mitigating anxiety-related disorders.

Conclusion

Such presentation of "lockdown-related" facial paralysis can serve to illustrate the existence of indirect victims of the COVID-19 pandemic (and subsequent socio-economic impact), which must not be forgotten in the fight against SARS-CoV-2. Indeed, even as the pandemic subsides, its lasting

socio-economical and psychological sequelae will probably lead to major increases in anxiety-related (or anxiety-favored) diseases.

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